

# PATENT ABSTRACTS OF JAPAN

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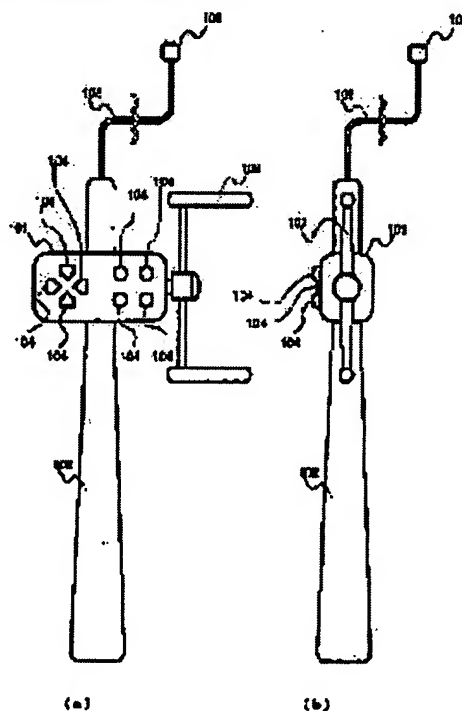
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(54) INPUT/OUTPUT DEVICE, CONTROL DEVICE FOR INPUT/OUTPUT DEVICE, CONTROL METHOD OF INPUT/OUTPUT DEVICE FOR FISHING GAME AND INFORMATION STORAGE MEDIUM

(57)Abstract:

PROBLEM TO BE SOLVED: To use an imitation rod for general-purpose game device and so on by measuring the rotary amount of handle against a handle support means and the position of the handle support means and outputting both results.

SOLUTION: The support body position measuring equipment, for example using an angular velocity sensor, is set inside of support body 102 of controller 101 to measure the position of controller 101 when a player grips the controller 101 and operates it like a fishing rod. And a handle 103 is set at the right side of controller 101 to operate like a reel handle and make it possible to do winding and release of reel. The rotary amount is measured with the rotary amount measuring equipment set in the support body 102. Various button 104 is set on the support body 102 to be able to set and display a fishing place or a tackle and so on. Connecting the support body 102 to a general-purpose game device with a cord 105, it is possible to use it on the general-purpose game device.



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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is the external view of the example of the I/O device for fishing games concerning this invention (controller).

[Drawing 2] It is the block block diagram of the example of the I/O device for fishing games of this invention (controller).

[Drawing 3] It is the block block diagram of the example of the I/O device for fishing games of this invention (controller).

[Drawing 4] It is the block block diagram of the example of the general-purpose game equipment to which the I/O device for fishing games of this invention (controller) is connected.

[Drawing 5] In the example of the general-purpose game equipment to which the I/O device for fishing games of this invention (controller) was connected, it is the flow chart which shows the control which realizes a fishing game.

[Drawing 6] It is the external view of the example of the I/O device for fishing games concerning this invention (controller).

[Description of Notations]

101 Controller 102 Base Material

103 Handle 104 Carbon Button

105 Code 106 Connector

111 Posture Measuring Device 112 Rotation Measuring Device

113 Rocking Equipment 114 Rotation Load Equipment

115 Storage 116 CPU

117 Bus 118 Interface

300 General-purpose Game Equipment 301 CPU

302 Main Memory 303 OS ROM

304 Sound Processing Processor

306 Graphic Operation Processor

307 CD-ROM Encoder 308 Communication Device

309 Bus 315 TV Apparatus

320 CD-ROM Drive

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[Translation done.]

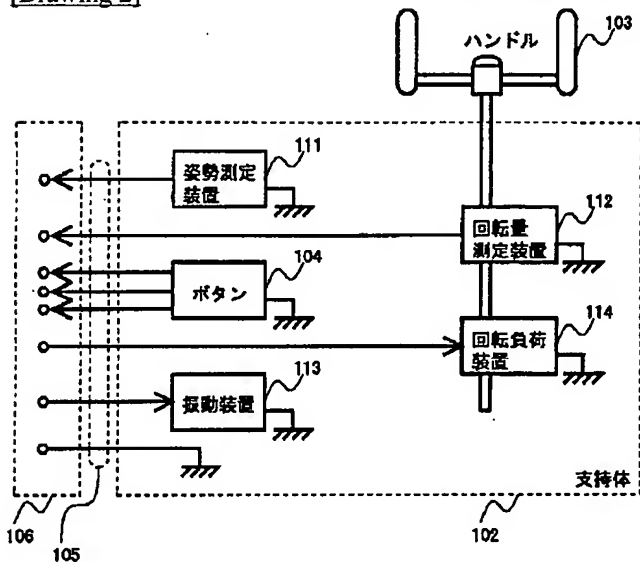
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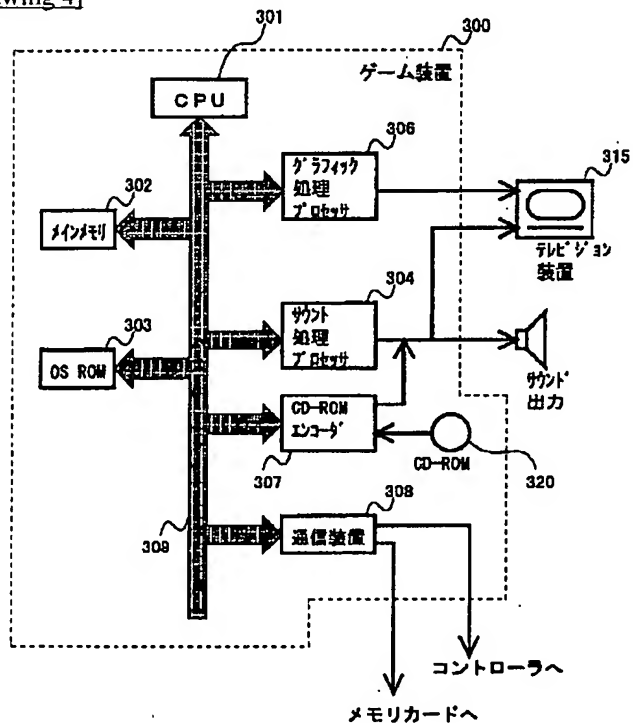
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DRAWINGS

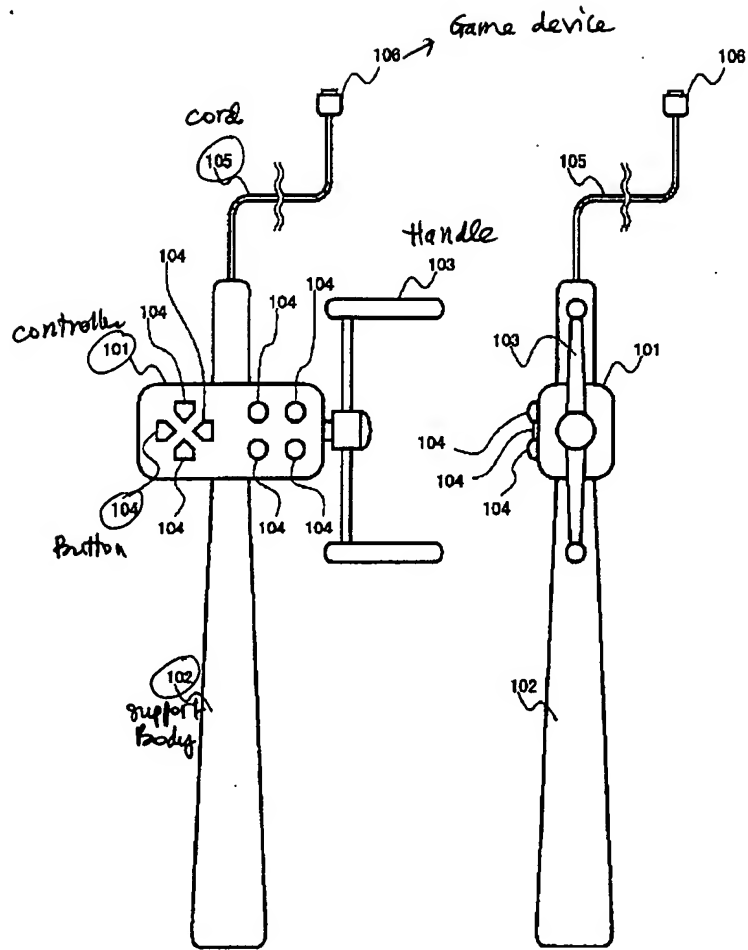
[Drawing 2]



[Drawing 4]



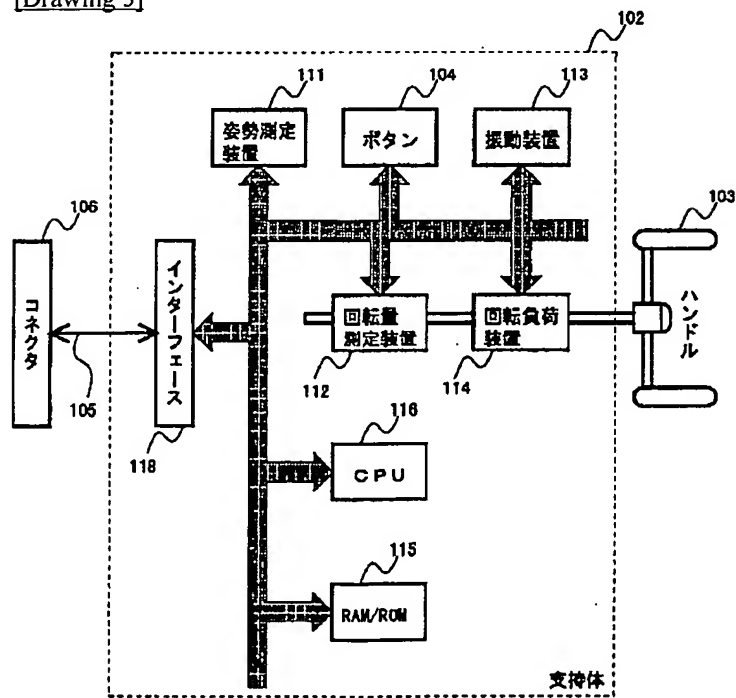
[Drawing 1]



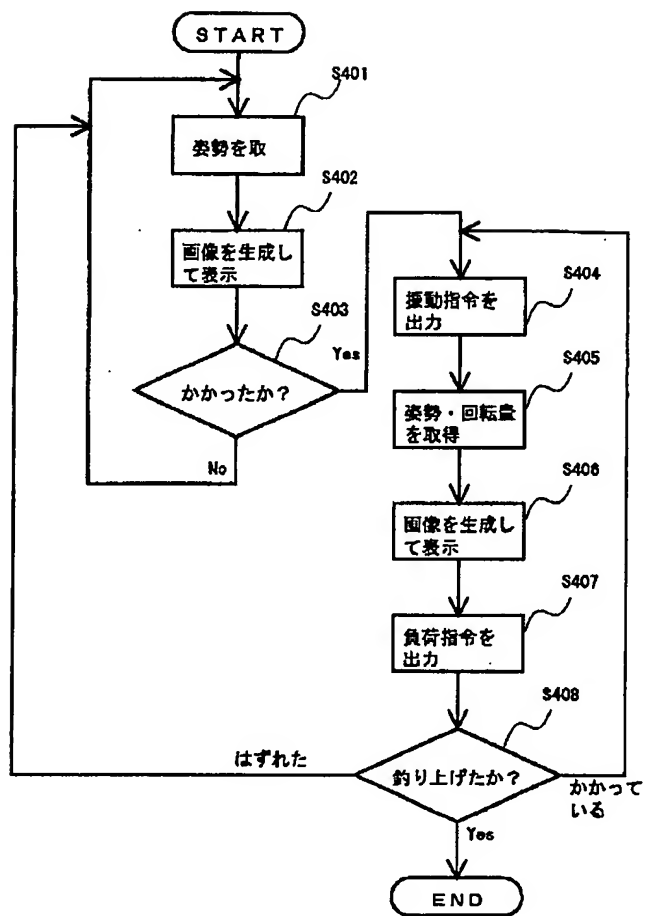
(a) 平面図

(b) 右側面図

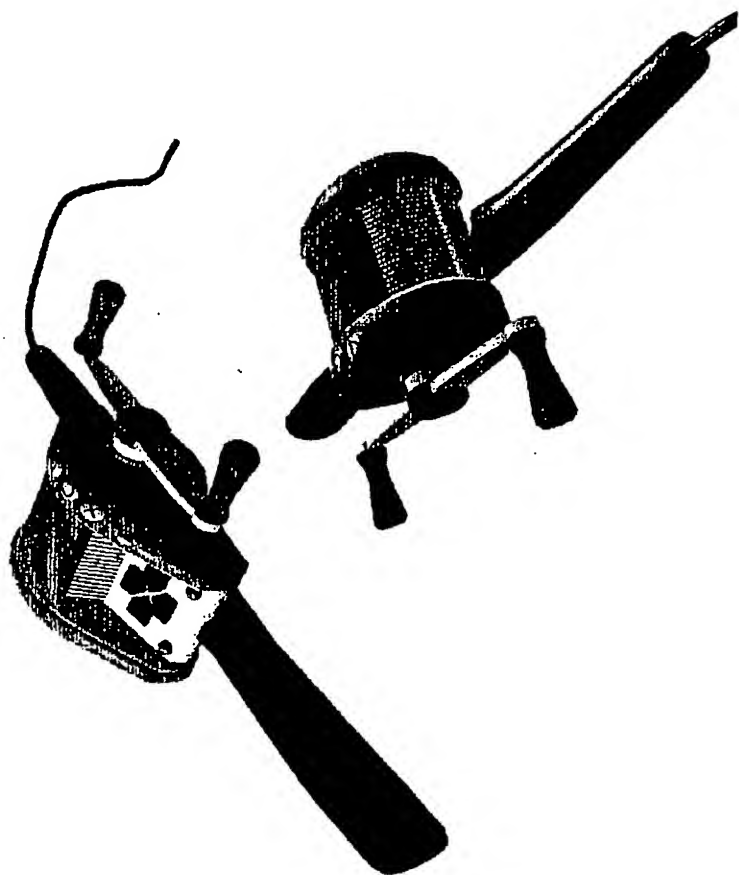
[Drawing 3]



[Drawing 5]



[Drawing 6]



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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] Especially this invention relates to the control approach of the control unit of the I/O device for fishing games which can be used in information processors, such as general-purpose game equipment and a general purpose computer, as a simulation beam of a fishing game, and the I/O device for fishing games concerned, and the I/O device for fishing games concerned, and an information record medium about the control approach of the control unit of the I/O device for fishing games, and the I/O device for fishing games, and the I/O device for fishing games, and an information record medium.

[0002]

[Description of the Prior Art] The fishing game which fishes, raises and enjoys the imagination fish and the goods which are calculated by information processors, such as game equipment and a computer, and are processed from the former is proposed.

[0003] In such a fishing game, a player operates the I/O device which imitated the handle of a fishing rod and a reel. An I/O device outputs the data of the posture of a fishing rod, or the rotation of a handle to an information processor.

[0004] Based on the transmitted data, the data which self memorizes, an information processor generates the image of an imagination fishing rod, and displays this on the screen of a display.

[0005] Moreover, the command which it judges whether the information processor required a fish and goods for this fishing rod, that is displayed [ command ] on a screen when it is judged that a fish and goods were applied, or vibrates an I/O device is outputted. The I/O device which received the command to vibrate vibrates self.

[0006] The player which got to know having applied a fish and goods changes the posture of a fishing rod, or rotates a handle. An I/O device outputs this data to an information processor. Modification of the posture of a fishing rod is performed by changing the posture of an I/O device. For example, although modification of the following postures can be considered, a player changes a posture in fact combining these.

(a) Modification of the posture by the actuation which flings up an I/O device, or shakes and is lowered. It sees from a player and the relative height of the edge before an I/O device and the edge by the side of the back is changed. That is, the inclination of the I/O device (fishing rod) to the direction of a vertical is changed.

(b) Modification of the posture by the actuation which twists an I/O device. Although it sees from a player and right-hand side is generally equipped with the handle of an I/O device in many cases, the location of this handle is changed into the circumference of the medial axis of an I/O device (fishing rod). That is, the twist of an I/O device (fishing rod) to the direction of a vertical is changed.

(c) Modification of the posture by the actuation which shakes an I/O device at right and left. It sees from a player and the relative include angle of the edge before an I/O device and the edge by the side of the back is changed. That is, the sense of the I/O device (fishing rod) received horizontally is changed.

[0007] Based on the posture of the inputted fishing rod, the rotation of a handle, etc., a fish and goods generate the image of signs that it is fished and raised, and display an information processor on a screen.

[0008] A fishing game advances by repeating these processings until it has fished a fish and goods or separates from a fishing rod.

[0009] Therefore, request of wanting to offer the fishing game which has a sense of reality more and is powerful is large.

[0010] As the I/O device for fishing games which can be used as a simulation beam of such a fishing game, or a body of fishing game equipment, there are indicated things, such as JP,50-27636,A, JP,63-174681,A, JP,3-7979,A, JP,3-7980,A, JP,3-7981,A, JP,7-248743,A, and JP,8-196742,A.

[0011] The configuration which fished the simulation beam in these, united with game equipment, and was fixed, and the configuration which gives a load in case the handle of a reel is rotated by having separately load equipment which rolls round a simulation fishing line while connecting a simulation fishing line to the reel of a simulation beam, fixing this to the ground etc., and rolling round a simulation fishing line are taken.

[0012]

[Problem(s) to be Solved by the Invention] However, the following problems had arisen with the configuration of such a conventional simulation beam.

[0013] With the configuration which united the simulation beam with game equipment, since it is necessary to lightweightize game equipment itself, a player cannot be provided with a powerful image. Moreover, since a limitation is in the versatility of the data of a fish or goods, the problem that the fun of a game will fall is produced from a limit of magnitude. Moreover, with the configuration fixed in the form equipped with displays, such as a TV apparatus, where fished and the simulation beam was projected to game equipment, the degree of freedom which brandishes a simulation beam becomes low, and the problem on which a sense of reality fades is produced.

[0014] On the other hand, with the configuration which connects a simulation beam and the body of game equipment through a simulation fishing line and the code for a communication link, the load made to rotate the handle at the time of applying a fish and goods is given by the load equipment which rolls round a simulation fishing line. For this reason, load equipment is fixed to the ground, or the equipment which prevents a debt of a simulation fishing line is needed, and the problem that the whole game equipment will become large is produced.

[0015] Moreover, in current [ through which information processors, such as general-purpose game equipment and a general purpose computer, have already spread ], there is a request of wanting to realize the fishing game which has a sense of reality more and is powerful with these information processors.

[0016] It was made in order that this invention might solve such a problem, and let it be a technical problem to offer the control approach of the control unit of the I/O device for fishing games which can be used in information processors, such as general-purpose game equipment and a general purpose computer, as a simulation beam of a fishing game, and the I/O device for fishing games concerned, and the I/O device for fishing games concerned, and an information record medium.

[0017]

[Means for Solving the Problem] Invention for attaining the above technical problem is the following invention.

→ [0018] The 1st invention is an I/O device for fishing games characterized by having the following means.

(a) the support means which has the handle to rotate, and (b) -- a rotation measurement means measure the rotation of said handle to said support means, and (c) -- a posture measurement means measure the posture of said support means, and (d) -- an output means output the rotation of said handle measured by said rotation measurement means, and the posture of said support means measured by said assignment measurement means.

→ [0019] In this invention, a support means has the handle to rotate, a rotation measurement means measures the rotation of the handle to a support means, a posture measurement means measures the posture of a support means, and an output means outputs the rotation of a handle and the posture of a support means which were measured.

[0020] By this invention, the I/O device for fishing games which can be used in information processors, such as general-purpose game equipment and a general purpose computer, as a simulation beam of a fishing game can be offered.

[0021] Especially the I/O device for fishing games concerning this invention can be offered independently with information processors, such as general-purpose game equipment and a general purpose computer.

[0022] The 2nd invention is an I/O device for fishing games characterized by said posture measurement means measuring the inclination to the direction of a vertical of said support means, and the twist to the direction of a vertical of said support means in the 1st invention.

→ [0023] In this invention, a posture measurement means measures the inclination and twist to the direction of a vertical of a support means. For example, a posture is measured by equipping 2 support means with the sensor which used gravity as a posture measurement means.

[0024] By this invention, the sense to the horizontal direction of a support means can offer the I/O device for fishing games which is not measured.

[0025] The 3rd invention is an I/O device for fishing games characterized by having the means of further the following in the 1st or 2nd invention.

(e) An oscillating input means to input the command which vibrates said support means, and an oscillating means to vibrate said support means according to the command inputted by the (f) aforementioned oscillating input means.

[0026] In this invention, an oscillating input means inputs the command which vibrates a support means, and an oscillating means vibrates a command means according to the command inputted by the oscillating input means.

[0027] This invention can express vibration when a fish is caught with a fishing rod, and the I/O device for fishing games which has a sense of reality more and is powerful can be offered.

[0028] The 4th invention is an I/O device for fishing games characterized by having the means of further the following in the 1st or 3rd invention.

(g) a load input means to input the command which gives a load in case said handle is rotated to said support means, and (h) - a load means to give a load in case said handle is rotated to said support means according to the command inputted by said load input means.

→ [0029] In this invention, in case a load input means rotates a handle to a command means, it inputs the command which gives a load, and in case a load means rotates a handle according to the command inputted by the load input means, it gives a load.

[0030] This invention can express the weight at the time of applying a fish and goods to a fishing rod, and resistance, and the I/O device for fishing games which has a sense of reality more and is powerful can be offered.

[0031] The 5th invention is the control approach of the I/O device for fishing games equipped with the support means which has a handle characterized by having the following steps.

(a) the step which measures the rotation of said handle to said support means, and (b) -- the step which measures the posture of said support means, and (c) -- the step which outputs the rotation of said said measured handle, and said measured posture



of said support means.

[0032] By this invention, the control approach of the I/O device for fishing games which can be used in information processors, such as general-purpose game equipment and a general purpose computer, as a simulation beam of a fishing game can be offered.

[0033] Moreover, in the 5th invention, the control approach of the I/O device for fishing games characterized by the step which measures the posture of said support means measuring the inclination to the direction of a vertical of said support means and the twist to the direction of a vertical of said support means is indicated further.

[0034] By this invention, the sense to the horizontal direction of a support means can offer the control approach of the I/O device for fishing games which is not measured.

[0035] Moreover, in the 5th invention, the control approach of the I/O device for fishing games characterized by having the step of further the following is indicated.

(d) The step which inputs the command which vibrates said support means, and the step which vibrates said support means according to the command by which the (e) aforementioned input was carried out.

[0036] This invention can express vibration when a fish is caught with a fishing rod, and the control approach of the I/O device for fishing games which has a sense of reality more and is powerful can be offered.

[0037] Moreover, in the 5th invention, the control approach of the I/O device for fishing games characterized by having the step of further the following is indicated.

(f) The step which inputs the command which gives a load in case said handle is rotated to said support means, and the step which gives a load in case said handle is rotated to said support means according to the command by which the (g) aforementioned input was carried out.

[0038] This invention can express the weight at the time of applying a fish and goods to a fishing rod, and resistance, and the control approach of the I/O device for fishing games which has a sense of reality more and is powerful can be offered.

→ [0039] The 6th invention is the control unit of the I/O device for fishing games which outputs the rotation of a handle, and the posture of a support means, and is a control unit characterized by having the following means.

(a) a measurand input means to input the rotation of said handle which said I/O device for fishing games outputted, and the posture of said support means, and (b) -- the rotation of said handle inputted by said measurand input means, and the posture of said support means -- since -- a display means to generate the image corresponding to the support means concerned, and to display the image concerned.

→ [0040] the rotation of the handle into which the measurand input means inputted into the rotation of the handle which the I/O device for fishing games outputted, and the posture of said support means in this invention, and the display means was inputted by the measurand input means, and the posture of a support means -- since -- the image corresponding to a support means is generated and the image concerned is displayed.

[0041] The control unit which controls the I/O device for fishing games which can be used as a simulation beam of a fishing game by this invention can be realized and offered using information processors, such as general-purpose game equipment as a control unit of dedication, and a general purpose computer.

[0042] The control unit especially applied to this invention can be offered independently with the above-mentioned I/O device for fishing games.

[0043] The inclination to the direction of a vertical of said support means among the postures of said support means in which the 7th invention was further inputted by said measurand input means in the 6th invention, It has a sense presumption means to calculate and presume the sense to the horizontal direction of said support means. the twist to the direction of a vertical of said support means -- since -- said display means The sense to the horizontal direction of said support means presumed by said sense presumption means, the inclination to the direction of a vertical of said support means among the postures of said support means in which it was inputted by said measurand input means, and the twist to the direction of a vertical of said support means -- since -- it is the control unit of the I/O device for fishing games characterized by generating the image corresponding to the support means concerned.

[0044] In this invention, a measurand input means inputs the inclination and twist to the direction of a vertical of a support means. A sense presumption means presumes the sense to the horizontal direction of a support means from the inclination and twist to the direction of a vertical of the support means inputted by the measurand input means. A display means the sense to the horizontal direction of the support means which was suitable with the inclination and twist to the direction of a vertical of the support means inputted by the measurand input means, and was presumed by the presumed means -- since -- the image corresponding to a support means is generated.

[0045] Even if it is the case where the I/O device for fishing games of an easy configuration of not measuring the sense to the horizontal direction of a support means is controlled by this invention, the control unit of the I/O device for fishing games which realizes the fishing game which has a sense of reality and is powerful can be offered.

[0046] The 8th invention is the control unit of the I/O device for fishing games further characterized by having equipped said I/O device for fishing games with an oscillating input means to input the command which vibrates said support means, and equipping it with the following means in the 6th or 7th invention.

(c) the rotation of said handle inputted by said measurand input means, and the posture of said support means -- since -- an oscillating decision means judge whether said support means is vibrated, and (d) -- an oscillating output means output the command which vibrates said support means to the oscillating input means of said I/O device for fishing games when the purport which vibrates said support means with said oscillating decision means is judged.

[0047] the rotation of the handle into which the oscillating decision means was inputted by the measurand input means in this invention, and the posture of a support means -- since -- it judges whether a support means is vibrated, and when the purport which vibrates a support means is judged, an oscillating output means fishes the command which vibrates a support means, and outputs it to the oscillating input means of the I/O device for games.

[0048] If the command vibrated to the I/O device for fishing games is outputted by this invention, vibration when a fish is caught with a fishing rod, for example can be expressed, and the control unit of the I/O device for fishing games which has a sense of reality more and is powerful can be offered.

[0049] The 9th invention is the control approach of the I/O device for fishing games further characterized by having equipped it with a load input means to input the command which gives a load when said I/O device for fishing games rotated said handle, and equipping it with the following means in the 6th to 8th invention.

(e) the posture of said support means were inputted by said measurand input means, and the rotation of said handle -- since -- a load decision means judge whether a load gives in case said handle is rotated, and (f) -- a load output means output the command which gives the load concerned to the load input means of said I/O device for fishing games when rotate said handle with said load decision means and the purport which gives a load is judged.

→ [0050] the posture of a support means in which the load decision means was inputted by the measurand input means in this invention, and the rotation of a handle -- since -- it judges whether a load gives or not, in case a handle rotates, and when rotate a handle with a load decision means and the purport which gives a load is judged, a load output means fishes the command which gives the load concerned, and outputs it to the load input means of the I/O device for games.

[0051] This invention can express the weight at the time of applying a fish and goods to a fishing rod, and resistance, and the control unit of the I/O device for fishing games which has a sense of reality more and is powerful can be offered.

[0052] The 10th invention is the control approach of the I/O device for fishing games which outputs the rotation of a handle, and the posture of a support means, and is the control approach characterized by having the following steps.

(a) the step which inputs the rotation of said handle which said I/O device for fishing games outputted, and the posture of said support means, and (b) -- the rotation of said said inputted handle, and the posture of said support means -- since -- the step which generates the image corresponding to the support means concerned, and displays the image concerned.

[0053] The control approach which controls the I/O device for fishing games which can be used as a simulation beam of a fishing game by this invention can be offered. <BR> [0054] Moreover, an inclination [ on the 10th invention and further as opposed to the direction of a vertical of said support means among the postures of said said inputted support means ], It has the step which calculates and presumes the sense to the horizontal direction of said support means. the twist to the direction of a vertical of said support means -- since -- said step to display The sense to the horizontal direction of said support means presumed by said sense presumption means, the inclination to the direction of a vertical of said support means among the postures of said said inputted support means, and the twist to the direction of a vertical of said support means -- since -- the control approach of the I/O device for fishing games characterized by generating the image corresponding to the support means concerned is indicated.

[0055] Even if it is the case where the I/O device for fishing games of an easy configuration of not measuring the sense to the horizontal direction of a support means is controlled by this invention, the control approach of the I/O device for fishing games of realizing the fishing game which has a sense of reality and is powerful can be offered.

[0056] Moreover, in the 10th invention, the control approach of the I/O device for fishing games characterized by having equipped said I/O device for fishing games with an oscillating input means to input the command which vibrates this, and equipping it with the following steps is indicated further.

(c) the rotation of said inputted handle of said, and the posture of said support means -- since -- the step which judges whether said I/O device for fishing games is vibrated, and (d) -- the step which outputs the command which vibrates said I/O device for fishing games to the oscillating input means of said I/O device for fishing games when the purport which vibrates said \*\*\*\*\* for fishing games by said step to judge is judged.

[0057] If the command vibrated to the I/O device for fishing games is outputted by this invention, vibration when a fish is caught with a fishing rod, for example can be expressed, and the control approach of the I/O device for fishing games which has a sense of reality more and is powerful can be offered.

[0058] Moreover, in the 10th invention, the control approach of the I/O device for fishing games characterized by having equipped it with a load input means to input the command which gives a load when said I/O device for fishing games rotated said handle, and equipping it with the following steps is indicated further.

(e) the rotation of said said inputted handle, and the posture of said support means -- since -- the step which judges whether a load is given or not in case said handle is rotated, and (f) -- the step which outputs the command which gives the load concerned to the load input means of said I/O device for fishing games when rotating said handle by said step and the purport which gives a load is judged.

[0059] This invention can express the weight at the time of applying a fish and goods to a fishing rod, and resistance, and the control approach of the I/O device for fishing games which has a sense of reality more and is powerful can be offered.

[0060] The 11th invention is the information record medium which recorded the program equipped with the following steps which control the I/O device for fishing games which outputs the rotation of a handle, and the posture of a support means.

(a) the step which inputs the rotation of said handle which said I/O means measured and outputted, and the posture of said support means, and (b) -- the rotation of said said inputted handle, and the posture of said support means -- since -- the step which generates the image corresponding to the support means concerned, and displays the image concerned.

[0061] By this invention, it considers as software goods, and with information processors, such as an I/O device for fishing games, general-purpose game equipment, and a general purpose computer, it can distribute easily or the information record medium which recorded the program can be sold now independently. The control approach of the control unit of the I/O device for fishing games which will be applied to the above-mentioned invention if the program recorded on the information record medium of this invention is performed with information processors, such as general-purpose game equipment and a general purpose computer, and the I/O device for fishing games concerning the above-mentioned invention is realizable, if the I/O device for fishing games which applies to the above-mentioned invention with the control unit concerned especially uses, there is a sense of reality more and a powerful fishing game can offer.

[0062]

[Embodiment of the Invention] The example of the gestalt of operation of this invention is given and explained below. In addition, the following embodiments are not raised for explanation and do not limit the range of the invention in this application. Therefore, although it is possible to adopt the operation gestalt which permutes some or all of a component of an embodiment that is explained below by this and the equal thing if it is this contractor, these embodiments are also included in the range of the invention in this application.

→ [0063] Drawing 1 is the external view of the example of the I/O device for fishing games concerning this invention (controller connectable with general-purpose game equipment), drawing 1 (a) is the top view, and drawing 1 (b) is the right side view. The operation gestalt of the I/O device for fishing games (controller) is explained referring to this Fig. In addition, although the operation gestalt suitable for a right-handed player is explained below, the operation gestalt which reversed right and left of the whole or a part is also employable.

→ [0064] It is equipped with the base material 102 which supports the whole controller while a player grasps a controller 101. For example, a player grasps a base material 102 with a left hand or both hands, and changes the posture of a base material 102, as a result a controller 101 as if the controller 101 was a fishing rod.

→ [0065] Inside the base material 102 of a controller 101, the posture measuring device 111 (not shown to drawing 1) which measures the posture of a base material 102 is arranged. When using an angular-velocity sensor with a posture measuring device, it can integrate with the output of a sensor about time amount, and an include angle can be obtained. Moreover, when using an angular-acceleration sensor, it can integrate with the output of a sensor twice about time amount, and an include angle can be obtained. In this case, the inclination of a base material 102, a twist, and the horizontal sense can be measured.

→ [0066] On the other hand, although the inclination and twist of a base material 102 can be measured when using the angle sensor using gravity, it is difficult to measure the horizontal sense. Therefore, if it uses the two angle sensors concerned in using the angle sensor which can measure change of the include angle of the circumference of 1 shaft, the inclination and twist of a base material 102 can be indirectly measured by direct or numerical conversion.

[0067] that to which, as for an angle sensor, the angle with gravity to make can measure the include angle of the arbitration from 0 times to 180 degrees analogically can also be used, and it cuts fine 15 degrees, for example, and comes out, and you may enable it to measure [inclination] the range of 0 times to 45 degrees by the right twist and left twist about 45 degrees to 135 degrees, and a twist from vertical facing down to facing up, respectively The measuring range and precision of an angle sensor can be changed suitably.

[0068] This technique is advantageous at the point which can lower the number and cost of a sensor compared with the above-mentioned technique. In addition, about the handling of the horizontal sense at the time of adopting this technique, it mentions later.

[0069] Inside the base material 102 of a controller 101, the rocking equipment 113 (not shown to drawing 1) which vibrates a base material 102 can be arranged. Rocking equipment generates vibration by rotating the weight which carried out eccentricity with driving gears, such as a motor, or driving a metal tongue intermittently with an electromagnet. The well-known rocking equipment used by the cellular phone, a pocket bell, etc. can be used.

[0070] The handle 103 which equips the right-hand side of a controller 101 with the revolving shaft which rotates to a base material 102 is arranged. For example, when there is a display which was able to fish a fish and goods as if the handle 103 was a handle of a reel, a player operates a handle 103 with the right hand, and takes winding-up actuation of a reel, and open actuation of a reel.

[0071] Inside the base material 102 of a controller 101, the rotation measuring device 112 (not shown to drawing 1) which measures rotation of the revolving shaft of a handle 103 is arranged. Furthermore, when a player rotates the revolving shaft of a handle 103, the rotation load equipment 114 (not shown to drawing 1) which can give a load and to measure can be arranged.

[0072] a rotation measuring device may enable it to measure the include angle of arbitration in analog, and rotates 45 degrees, for example -- \*\* -- it is alike and you may make it generate a pulse Although it is difficult to measure the absolute location of which rotated from the criteria location with the operation gestalt which generates a pulse, since rotating only to an one direction is common as for the reel of a fishing rod so that it may mention later, a problem is not generated in case a rotation is obtained.

[0073] Generating of a pulse may attach a switch to the revolving shaft of a handle 103, may attach a slit and a reflecting plate in a revolving shaft, and may detect rotation with a photosensor.

[0074] The load which rotation load equipment gives is the torque of the hand of cut and hard flow in the case of turning a handle 103 in the direction which rolls round a fishing line. This torque may enable it to take out the magnitude of arbitration in analog, and may divide the magnitude of torque into four steps, six etc. steps, etc. gradually. With this configuration, the

resistance at the time of lengthening HIKI of a fish, the weight of goods, and these can be expressed, and a sense of reality and force can be increased.

[0075] By this invention, the load at the time of rotating the handle of a reel is given by the rotation load equipment built in the controller 101 to having given the load through the simulation fishing line in the conventional simulation fishing rod input unit. Therefore, the whole fishing game equipment can be made very smaller than before, and problems, like a simulation fishing line twines are not generated, either.

[0076] Moreover, the reel of an actual fishing rod is constituted in many cases so that it can rotate only to an one direction (the rolling-up direction of a fishing line). Then, a well-known inverse rotation prevention device can be used, and it can constitute so that a handle 103 can also be rotated only to an one direction (the rolling-up direction of a fishing line). With this configuration, a sense of reality can be increased more.

[0077] The various carbon buttons 104 are arranged on the center-section top face of the base material 102 of a controller 101. These carbon buttons 104 may choose a fishing spot, a course, a mechanism, food, lure, etc. in a fishing game. A menu is displayed on a screen and a player can order it these selections by choosing an item from the inside. By the controller with which general-purpose game equipment is equipped standardly, these actuation is performed using various carbon buttons, such as a carbon button with which alphabetic characters, such as graphic forms, such as a direction carbon button arranged at the configuration of a cross, O, \*\*, \*\*, and x, and A, B, C, were indicated. ]←

[0078] In order to enable it to permute by the controller of a standard equipment of the controller 101 of this invention to general-purpose game equipment, the same carbon button 104 as the controller of standard equipment is arranged. However, it is also possible to take the operation gestalt which is not equipped with these carbon buttons 104.

[0079] Moreover, although the switch and lever for opening the clutch between a reel and a fishing line wide, and coming out of a fishing line freely are used in the actual fishing rod, the role of these switches and levers can be assigned to the above-mentioned carbon button 104.

[0080] It sees from the point of the base material 102 of a controller 101, i.e., a player, a code 105 is prolonged from a back side, and the tip of the code 105 is connected to the connector 106. A connector 106 is connected to the body of game equipment, and a controller 101 and general-purpose game equipment communicate through a code 105 and a connector 106. A controller 101 transmits the rotation of the handle 103 which the posture and rotation measuring device of the base material 102 which the posture measuring device measured measured etc. to general-purpose game equipment through a code 105 and a connector 106. On the other hand, general-purpose game equipment issues the command which gives a load with rotation load equipment, the command which vibrates rocking equipment to a controller 101 through a code 105 and a connector 106.

[0081] Moreover, in order to operate the equipment with which a controller 101 is equipped, when power is required, power can be supplied from general-purpose game equipment through a code 105 and a connector 106.

[0082] With this operation gestalt, although the communication link between general-purpose game equipment and a controller 101 is performed using a code 105 and a connector 106, infrared ray communication and the radio by the electric wave can be used as an interface which changes to a code 105 and a connector 106. With this operation gestalt, the posture of a controller 101 can be freely changed more compared with the case of a cable. For example, since flinging up of actuation which is going to fly the point of a fishing line to a distance as much as possible, and swing lowering can be performed greatly, a sense of reality and force can be increased.

[0083] In addition, the external view of other operation gestalten of the controller of this invention is shown in drawing 6. This operation gestalt is increasing a sense of reality and force by making the configuration of a fishing rod, a reel, etc. similar to an actual thing.

→ [0084] Drawing 2 is the block block diagram of the example of the I/O device for fishing games of this invention (controller). In the example of drawing 2 R> 2, a controller 101 is equipped with a base material 102, a code 105, and a connector 106, a carbon button 104, the posture measuring device 111, the rotation measuring device 112, rocking equipment 113, and rotation load equipment 114 are arranged inside a base material 102, and these are connected to general-purpose game equipment through a code 105 and a connector 106. The rotation measuring device 112 and rotation load equipment 114 are connected with the handle 103 through the switch, a photosensor, a gear, etc.

→ [0085] Drawing 3 is the block block diagram of the example of the I/O device for fishing games of this invention (controller). The example of drawing 3 R> 3 is the technique of realizing controller 101 the very thing as information processors, such as a computer. The storage 115, such as RAM/ROM (Random Access Memory/Read Only Memory; random access memory, read-only memory) besides a carbon button 104, the posture measuring device 111, the rotation measuring device 112, rocking equipment 113, and rotation load equipment 114, and CPU (Central Processing Unit; central-process unit) 116 are arranged, and these are connected to the interior of a base material 102 by bus 117. A bus 117 is connected to an interface 118 and an interface 118 performs the communication link between general-purpose game equipment through a code 105 and a connector 106. It is possible to make controller 101 the very thing perform complicated processing with this operation gestalt.

[0086] Drawing 4 is the block block diagram of the example of the general-purpose game equipment to which the I/O device for fishing games of this invention (controller) is connected. The game equipment 300 shown in drawing 4 is CPU. 301, main memory 302, OS It has ROM (Operating System ReadOnly Memory) 303, the sound processing processor 304, the graphic operation processor 306, the CD-ROM (Compact Disk Read Only Memory) decoder 307, and a communication device 308. Moreover, each part is connected by the bus 309.

[0087] CPU 301 equips the interior with cache memory or GTE (GeomeTric Engine; graphics data generation processor).

Cache memory can access a high speed rather than main memory 302. This is because it is not necessary to go via a bus 309. In cache memory, it is CPU. The program the data near [ which 301 used recently ] the address, near the address which are carrying out current activation, and near [ that are expected to perform from now on ] the address etc. is stored. For this reason, improvement in the speed of repeat count etc. can be attained.

[0088] GTE is CPU. It is the co-processor of 301 and coordinate transformation of a fishing rod, a fish, goods, and the image of a background, matrix vector operation of light source count, etc. are performed.

[0089] Main memory 302 stores a program and data temporarily. OS ROM303 is the memory which memorized the operating system.

[0090] The graphic operation processor 306 is connected to TV apparatus 315 through a video outlet 310. TV apparatus 315 is equipped with displays, such as CRT (Cathode Ray Tube) and LCD (Liquid Crystal Display; liquid crystal display).

[0091] The graphic operation processor 306 is CPU. A polygon drawing instruction is followed from 301 and it is CPU. Based on coordinate data, color data, etc. which were called for by 301 (GTE), a fishing rod, a fish, goods, and the image of a background are generated, and it displays on TV apparatus 315. These are generable as polygon graphics.

[0092] The graphic operation processor 306 can also indicate by playback static-image data and animation data which were read from CD-ROM through the CD-ROM encoder 307 and CD-ROM drive 320 at TV apparatus 315. In addition, the graphic operation processor 306 can also perform the animation display which carries out sequential change of the image drawn on the two-dimensional flat surface.

[0093] The controller and memory card of a standard equipment besides a controller 101 which can be used as a simulation fishing rod shown in drawing 1 are connectable with a communication device 308. This communication device 308 is CPU about the posture of the base material 102 of a controller 101, the rotation of a handle 103, the depression situation of a carbon button 104, etc. It is CPU while transmitting to 301. The command which gives a load is transmitted to a controller 101 to the command which vibrates a base material 102 based on the command of 301, and rotation of a handle 103.

[0094] Moreover, CPU Based on the command of 301, read-out and the writing of data to a memory card are performed. Drive control is carried out. A communication device 108 can be equipped with a memory card free [ attachment and detachment ], and it is equipped with nonvolatile memory. A memory card can hold the data (for example, success in battle of fishing etc.) memorized inside also in the condition of sampling from the communication device 108. Moreover, this memory card itself is also realizable as a computer equipped with storage (RAM and ROM) or a control unit (CPU).

[0095] Drawing 5 is a flow chart which shows the control which realizes a fishing game in the example of the general-purpose game equipment to which the I/O device for fishing games of this invention (controller) was connected.

[0096] First, CPU 301 acquires the data of the posture of the base material 102 transmitted from the controller 101 (step S401).

[0097] Next, CPU Based on the data of the posture concerned, and the data recorded on main memory 302 or CD-ROM, 301 uses GTE and the graphics processing processor 306, generates images, such as a fishing rod, a fishing line, a fish, goods, and a background, and displays this on TV apparatus 315 (step S402). Moreover, a sound can be suitably taken out from TV apparatus 315 using the sound processing processor 304.

[0098] Next, count investigates whether an imagination fish and goods were applied to the mechanism of a fishing line (step S403). The data of a fish or goods can be beforehand loaded to main memory 302 from CD-ROM. When having not started (step S403; No), it returns to step S401. When having started (step S403; Yes), it progresses to step S404.

[0099] CPU 301 outputs the command of the purport which should vibrate to a controller 101 (step S404). By the controller 101 which received this, rocking equipment 113 can vibrate and a player can sense the strike which required the fish etc.

[0100] Subsequently, CPU 301 acquires the rotation of the posture transmitted from the controller 101, and a handle 103 (step S405).

[0101] Furthermore, CPU Like step S402, 301 generates images, such as a fishing rod, a fishing line, a fish, goods, and a background, and displays this on TV apparatus 315 (step S406). In addition, when a fish, goods, etc. have been fished, these images are also generated and expressed as this step S406. For example, when a fishing line cuts the water surface, they are the image in which signs that a spray goes up are shown, the image whose number of fish can be seen in water vacantly, the image in which signs that a fish and goods have been fished gradually are shown.

→ [0102] And CPU 301 examines the rotation of the handle 103 transmitted from the controller 101, determines the magnitude of the load given to rotation of a handle based on that value, the caught fish, the data of goods, etc., and transmits this command to a controller 101 (step S407). The rotation load equipment of a controller 101 can change the magnitude of a load according to this command, and a player can sense HIKI of a fish, the weight of resistance and goods, etc.

[0103] And CPU 301 judges whether a fish and goods had been fished (step S408). or this was able to carry out the cast of the mechanism in the distance only as for which, or (that is, which shook [ which ] and took down the controller 101 with sufficient vigor?) actuation of a fishing rod was completed [ which rolled round the fishing line, or (namely, the amount which rotated the handle -- do about / which / ?) ] well (that is, how was the controller 101 shaken?) -- etc. -- it can judge based on data. When fished (step S408; Yes), it is termination of one game.

[0104] When it is judged that return and a fish have shifted from the mechanism of a fishing line to step S404 when a fish is judged to still have started the mechanism of a fishing line (step S408; it has started) (step S408; shifted), it returns to step S401.

[0105] By such control approach of game equipment, the fishing game which has a sense of reality and is powerful can be offered. Moreover, the program which realizes these control approaches can be recorded on information record media, such



as CD-ROM, and sale etc. can carry out this independently.

[0106] When only an inclination and a twist are obtained as data of the posture of a base material 102 below, how to calculate and presume the horizontal sense from these data is explained.

[0107] When human being who is fishing shakes a fishing rod, in many cases, the include angle of the left hand supporting the grip of a fishing rod changes. For example, a fishing rod is twisted by sense a left palm turns [ sense ] to a top and the back of a hand turns [ sense ] to the bottom when shaking a fishing rod at the left. The amount of this twist changes with the inclination to the direction of a vertical of a fishing rod. Therefore, even if it is the case where the swing of horizontal right and left cannot be measured, this can be calculated and presumed from the inclination of a fishing rod, and the amount of a twist.

[0108] for example, although the operation gestalt which minces the inclination of a fishing rod 15 degrees, comes out of, minces the twist of seven steps and a fishing rod 15 degrees, and comes out of and which is measured in seven steps was mentioned above, the sense of the swing of horizontal right and left can be beforehand set up about 49 kinds of this each. This can be measured by experiment.

[0109] The processing calculated and presumed in these cases is realizable as follows. Main memory 302 is beforehand memorized as an array of 7x7 of 49 kinds of elements, judges whether CPU301 is which [ above-mentioned / the seven steps of ] phase about the inclination of the acquired fishing rod, and the amount of a twist, and acquires the value memorized by the specific line (phase of an inclination) of an array, and the specific train (phase of a twist) according to this numeric value. This value is the sense to the horizontal direction of a fishing rod guessed by count.

[0110] Moreover, it is also possible to correct this set point for every player. For example, the setting screen of the sense of a fishing rod is displayed on a TV apparatus, the horizontal sense is specified, and it directs to shake a controller 101 in the direction to a player. An inclination when a player shakes a controller 101, and the data of a twist are acquired, and a table with 49 kinds of above-mentioned items is suitably filled based on the data.

[0111] Since a controller 101 is only equipped with one angle sensor which can detect rotation of the circumference of biaxial [ comparatively cheap ], or two angle sensors which can detect rotation of the circumference of 1 shaft and the horizontal sense can be presumed for it, while size of a controller 101 can be made small and cost can be lowered to it with this operation gestalt, it is the same as that of the case where it has an angular-velocity sensor etc. in that the fishing game which has a sense of reality and is powerful can be offered. In addition, it is also possible to use this technique in order to save the number of an angular-velocity sensor or angular-acceleration sensors (the number of detectable revolving shafts), This operation gestalt is also included in the range of this invention.

[0112] In addition, when not using the controller concerning this invention, general-purpose game equipment and the controller of standard attachment can be used, and general-purpose game equipment can also be made to perform the program recorded on the information record medium concerning this invention. In this case, the controller of standard attachment transmits the data equivalent to the posture of a base material, and the rotation of a handle, for example, how many times the carbon button was pushed at fixed time amount and data, to general-purpose game equipment. Therefore, this operation gestalt is also included in the range of this invention.

[0113] Moreover, it is also possible to connect the controller concerning this invention with remote devices, such as a manipulator, electrically, to fish an actual fish and goods, and to apply to a game. In this case, although it differs in that the fished object is the imagination fish calculated by the information processing machine, or not goods but an actual fish and goods, this operation gestalt is also included in the range of this invention.

[0114]

[Effect of the Invention] This invention does the following effectiveness so.

[0115] The I/O device for fishing games which can be used for the 1st in information processors, such as general-purpose game equipment and a general purpose computer, as a simulation beam of a fishing game, and its control approach can be offered.

[0116] Especially the I/O device for fishing games concerning this invention can be offered independently with information processors, such as general-purpose game equipment and a general purpose computer.

[0117] The sense to the horizontal direction of a support means can offer [ 2nd ] the I/O device for fishing games which is not measured, and its control approach.

[0118] The I/O device for fishing games which can express vibration when a fish is caught with a fishing rod to the 3rd, has a sense of reality in it more, and has force in it, and its control approach can be offered.

[0119] The I/O device for fishing games which can express the weight at the time of applying a fish and goods to a fishing rod and resistance to the 4th, has a sense of reality in it more, and has force in it, and its control approach can be offered.

[0120] The 5th can be realized and provided with the control unit and the control approach of controlling the I/O device for fishing games which can be used as a simulation beam of a fishing game using information processors, such as a control unit of dedication or general-purpose game equipment, and a general purpose computer. The control unit especially applied to this invention can be offered independently with the above-mentioned I/O device for fishing games.

[0121] The control unit and the control approach of the I/O device for fishing games of 6th realizing the fishing game which has a sense of reality and is powerful even if it is the case where the I/O device for fishing games of an easy configuration of not measuring the sense to the horizontal direction of a support means is controlled can be offered.

[0122] The control unit and the control approach of the I/O device for fishing games which can express vibration when a fish is caught with a fishing rod, for example to it, have a sense of reality in it more, and have force in it if the command of the

purport which vibrates to the I/O device for fishing games is outputted to the 7th can be offered.

[0123] The control unit and the control approach of the I/O device for fishing games which can express the weight at the time of applying a fish and goods to a fishing rod and resistance to the 8th, have a sense of reality in it more, and have force in it can be offered.

[0124] It considers as software goods, and with information processors, such as an I/O device for fishing games, general-purpose game equipment, and a general purpose computer, it can distribute easily or the information record medium which recorded the program which realizes an above-mentioned control unit and the above-mentioned control approach can be sold now to the 9th independently. The control approach of the control unit of the I/O device for fishing games which will be applied to the above-mentioned invention if the program recorded on the information record medium of this invention is performed with information processors, such as general-purpose game equipment and a general purpose computer, and the I/O device for fishing games concerning the above-mentioned invention is realizable, if the I/O device for fishing games which applies to the above-mentioned invention with the control unit concerned especially uses, there is a sense of reality more and a powerful fishing game can offer.

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[Translation done.]

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2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

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CLAIMS

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[Claim(s)]

[Claim 1] The I/O device for fishing games characterized by having the following means.

(a) the support means which has the handle to rotate, and (b) -- a rotation measurement means measure the rotation of said handle to said support means, and (c) -- a posture measurement means measure the posture of said support means, and (d) -- an output means output the rotation of said handle measured by said rotation measurement means, and the posture of said support means measured by said assignment measurement means.

[Claim 2] Said posture measurement means is an I/O device for fishing games according to claim 1 characterized by measuring the inclination to the direction of a vertical of said support means, and the twist to the direction of a vertical of said support means.

[Claim 3] Furthermore, the I/O device for fishing games according to claim 1 or 2 characterized by having the following means.

(e) An oscillating input means to input the command which vibrates said support means, and an oscillating means to vibrate said support means according to the command inputted by the (f) aforementioned oscillating input means.

[Claim 4] Furthermore, the I/O device for fishing games given in either of claims 1-3 characterized by having the following means.

(g) a load input means to input the command which gives a load in case said handle is rotated to said support means, and (h) -- a load means to give a load according to the command inputted by said load input means in case said handle is rotated to said support means.

[Claim 5] The control approach of the I/O device for fishing games equipped with the support means which has the handle which is characterized by having the following steps, and to rotate.

(a) the step which measures the rotation of said handle to said support means, and (b) -- the step which measures the posture of said support means, and (c) -- the step which outputs the rotation of said said measured handle, and said measured posture of said support means.

[Claim 6] The control unit which is a control unit of the I/O device for fishing games which outputs the rotation of a handle, and the posture of a support means, and is characterized by having the following means.

(a) a measurand input means to input the rotation of said handle which said I/O device for fishing games outputted, and the posture of said support means, and (b) -- the rotation of said handle inputted by said measurand input means, and the posture of said support means -- since -- a display means to generate the image corresponding to the support means concerned, and to display the image concerned.

[Claim 7] Furthermore, the inclination to the direction of a vertical of said support means among the postures of said support means in which it was inputted by said measurand input means, It has a sense presumption means to calculate and presume the sense to the horizontal direction of said support means. the twist to the direction of a vertical of said support means -- since -- said display means The sense to the horizontal direction of said support means presumed by said sense presumption means, The inclination to the direction of a vertical of said support means among the postures of said support means in which it was inputted by said measurand input means, the twist to the direction of a vertical of said support means -- since -- the control unit of the I/O device for fishing games according to claim 6 characterized by generating the image corresponding to the support means concerned.

[Claim 8] Furthermore, said I/O device for fishing games is a control unit of the I/O device for fishing games according to claim 6 or 7 characterized by having had an oscillating input means to input the command which vibrates this, and having the following means.

(c) the rotation of said handle inputted by said measurand input means, and the posture of said support means -- since -- an oscillating decision means judge whether said I/O device for fishing games vibrates, and (d) -- an oscillating output means output the command concerned vibrate to the oscillating input means of said I/O device for fishing games when the purport which vibrates said I/O device for fishing games with said oscillating decision means is judged.

[Claim 9] Furthermore, said I/O device for fishing games is a control unit of the I/O device for fishing games given in either of claims 6-8 characterized by having had a load input means to input the command which gives a load when rotating said handle, and having the following means.

(e) the posture of said support means were inputted by said measurand input means, and the rotation of said handle -- since -- a load decision means judge whether a load gives in case said handle is rotated, and (f) -- a load output means output the



command which gives the load concerned to the load input means of said I/O device for fishing games when rotate said handle with said load decision means and the purport which gives a load is judged.

[Claim 10] The control approach which is the control approach of the I/O device for fishing games which outputs the rotation of a handle, and the posture of a support means, and is characterized by having the following steps.

(a) the step which inputs the rotation of said handle which said I/O device for fishing games outputted, and the posture of said support means, and (b) -- the rotation of said said inputted handle, and the posture of said support means -- since -- the step which generates the image corresponding to this support means, and displays the image concerned.

[Claim 11] The information record medium which recorded the program equipped with the following steps which control the I/O device for fishing games which outputs the rotation of a handle, and the posture of a support means.

(a) the step which inputs the rotation of said handle which said I/O device for fishing games outputted, and the posture of said support means, and (b) -- the rotation of said said inputted handle, and the posture of said support means -- since -- the step which generates the image corresponding to the support means concerned, and displays the image concerned.

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